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01/28/2005

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EXAMINER

PEREZ, JAMES M

ART UNIT

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2611

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/522,756 | Applicant(s) RICHARDSON, MICHAEL RICHARD | |
| | Examiner JAMES M. PEREZ | Art Unit 2611 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 March 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-11 and 27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,6-11 and 27 is/are rejected.
- 7) ☒ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This action is responsive to the Request for Continued Examination filed on 3/5/2010.

Currently, claims 1, 3-11, and 27 are pending.

Response to Arguments

1. Applicant's arguments with respect to claims 1, 3-11, and 27 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

2. Claims 1, 3-11, and 27 are objected to because of the following informalities:

- (1) Claim 1 includes multiple introductions of "signal power" and "interference power". These duplicate limitations add confusion when reading the claim limitations.
- (2) Claim 27 is objected to for similar informalities.
- (3) Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 27 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention for the following reasons:

- (1) The steps of a method are implemented in the order in which they are presented (i.e. first 'step a', then 'step b', etc). The claim 'step d' is said to be performed as part of 'step a'. Thus represent a contradiction between the limitations and the structure of the method claim. Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 3-4, and 6-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dickey (US 2004/0166809) in view of Bilitza et al. (USPN 5,390,216).

With regards to claim 1, Dickey teaches a cellular telephone system (par 2 and 3: GSM and cellular communication) comprising at least one antenna (par 25) for detecting a received signal (par 25 and 28) and a signal processor (par 25 and 28) for processing the received signal detected by the at least one antenna (par 25 and 28), a method of determining the amount of signal power and interference power in a received signal (par 25 and 28), the received signal having a wanted signal providing said signal power (par 25 and 28) and a plurality of interfering signals providing said interference power (par 25 and 28), the wanted signal being encoded such that there is a channel structure including a broadcast control channel (par 25 and 28: in GSM the frequency burst correction FCCH (or FCB) is inherently within the broadcast channel), the method comprising use of the signal processor in the steps of:

a) selecting a plurality of first portions having a first known structure in the wanted signal (par 25 and 28: FCCH), where the appropriate time frame is used to

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determine the levels of interference from other BCCH channels (par 26 and 28: interfering co-channel cells);

b) processing the received signal in accordance with said plurality of first portions to derive a set of amplitude values corresponding to the said first known structure (par 28-30: FCCH correlation); and

c) using the set of amplitude values to determine both a signal power level and an interference power level for at least part of the received signal (par 28-31: peaks).

Dickey do not explicitly teach said plurality of first portions being identified using a further known structure within the broadcast control channel to provide a signal having known periods with defined properties.

Bilitza teaches said plurality of first portions (col. 5, lines 55-68: frequency correction burst or FCB) being identified using a further known structure (col. 5, lines 55-68: pre and post dummy bits with defined properties, where the examiner is interpreting the active part to be the FCB) within the broadcast control channel to provide a signal having known periods with defined properties (col. 5, lines 55-68: pre and post dummy bits with defined properties and are used to define the active and useful parts of the signal). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the GSM system of Dickey with the teachings of Bilitza as compliant with GSM rec.05.04 in order increase signal quality and synchronization at the receiver.

With regards to claim 3, Dickey in view of Bilitza teaches the limitations of claim 1.

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Dickey does not explicitly teach wherein step a) includes identifying locations of the further known structure within the wanted signal, and using the identified locations to derive the locations of said plurality of first portions.

Bilitza teaches said plurality of first portions (col. 5, lines 55-68: frequency correction burst or FCB) being identified using a further known structure (col. 5, lines 55-68: pre and post dummy bits with defined properties, where the examiner is interpreting the active part to be the FCB) within the broadcast control channel to provide a signal having known periods with defined properties (col. 5, lines 55-68: pre and post dummy bits with defined properties and are used to define the active and useful parts of the signal). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the GSM system of Dickey with the teachings of Bilitza as compliant with GSM rec.05.04 in order increase signal quality and synchronization at the receiver.

With regards to claim 4, Dickey in view of Bilitza teaches the limitations of claim 1.

Dickey teaches wherein said plurality of first portions comprises Frequency Correction Bursts (par 25 and 28: FCCH).

With regards to claims 6 and 7, Dickey in view of Bilitza teaches the limitations of claim 1.

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Dickey in view of Bilitza do not explicitly teach wherein the step of identifying said plurality of first portions includes using pointers selected by said further known structure, where said pointers are stored in a LUT, a table stored in memory.

Using pointers where are stored in tables (LUT) to locate known fields/bits with a known frame/packet structure is well-known and expected in the art. Thus it would have been obvious to one having ordinary skill in the art at the time of the invention to use pointers stored a Lookup Table, since locating known bits or known 'frame elements' via pointers reduces complexity and has reduces search time for looking for a particular frame/field in a known frame/packet structure.

With regards to claim 8, Dickey in view of Bilitza teaches the limitations of claim 1.

Dickey teaches wherein step b) comprises correlating the received signal with said selected plurality of first portions known to derive said amplitude values (par 28, 30, and 36: correlation).

With regards to claim 9, Dickey in view of Bilitza teaches the limitations of claim 1.

Dickey teaches wherein step c) comprises determining mean values for said amplitude values (par 26: averaging).

Dickey does not explicitly teach determining variance.

Variance is well-known statistical operation and is expected in the art at the time the invention was made. Thus it would have been obvious to one of ordinary skill in the art to modify statically operations of Dickey to determine variance or a variation of

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variance like standard deviation in order to obtain a more compressive and accurate statistical data relating to co-channel interference or adjacent channel interference.

With regards to claims 10 and 11, Dickey in view of Bilitza teaches the limitations of claim 1.

Dickey teaches wherein step c) further comprises using calibration factors to produce an absolute power value for the wanted signal and interfering signals (par 29 and 34)

7. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dickey (US 2004/0166809) in view of Bilitza et al. (USPN 5,390,216) further in view of Monot et al. (USPN 6,349,207).

With regards to claim 27, Dickey teaches a cellular telephone system (par 2 and 3: GSM and cellular communication) comprising at least one antenna (par 25) for detecting a received signal (par 25 and 28) and a signal processor (par 25 and 28) for processing the received signal detected by the at least one antenna (par 25 and 28), a method of determining the amount of signal power and interference power in a received signal (par 25 and 28), the received signal having a wanted signal providing said signal power (par 25 and 28) and a plurality of interfering signals providing said interference power (par 25 and 28), the wanted signal being encoded such that there is a channel structure including a broadcast control channel (par 25 and 28: in GSM the frequency

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burst correction FCCH (or FCB) is inherently within the broadcast channel), the method comprising use of the signal processor in the steps of:

a) selecting a plurality of first portions having a first known structure in the wanted signal (par 25 and 28: FCCH), where the appropriate time frame is used to determine the levels of interference from other BCCH channels (par 26 and 28: interfering co-channel cells);

b) processing the received signal in accordance with said plurality of first portions to derive a set of amplitude values corresponding to the said first known structure (par 28-30: FCCH correlation); and

c) using the set of amplitude values to determine both a signal power level and an interference power level for at least part of the received signal (par 28-31: peaks).

Dickey do not explicitly teach two limitations: Limitation 1) said plurality of first portions being identified using a further known structure within the broadcast control channel to provide a signal having known periods with defined properties; and Limitation 2) step d: receiving a second received signal that is a time co-incident set of signal samples of the wanted signal and using the second received signal in step a) to ensure selection of said plurality of first portions in the wanted signal.

Limitation 1)

Bilitza teaches said plurality of first portions (col. 5, lines 55-68: frequency correction burst or FCB) being identified using a further known structure (col. 5, lines 55-68: pre and post dummy bits with defined properties, where the examiner is interpreting the active part to be the FCB) within the broadcast control channel to

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provide a signal having known periods with defined properties (col. 5, lines 55-68: pre and post dummy bits with defined properties and are used to define the active and useful parts of the signal). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the GSM system of Dickey with the teachings of Bilitza as compliant with GSM rec.05.04 in order increase signal quality and synchronization at the receiver.

Limitation 2)

Monot teaches receiving a second received signal that is a time co-incident set of signal samples of the wanted signal and using the second received signal in to ensure selection of plurality of first portions in the wanted signal (fig. 17: col. 50-65: diversity gain).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the GSM system of Dickey with the teachings of diversity gain disclosed in Monot to increase the quality of the received signal thus increase selection accuracy of the plurality of first portions (FCB) in the wanted signal.

Allowable Subject Matter

8. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES M. PEREZ whose telephone number is (571)270-3231. The examiner can normally be reached on Monday through Friday: 9am to 5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on 571-272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/James M Perez/
Examiner, Art Unit 2611
3/29/2010
/Shuwang Liu/
Supervisory Patent Examiner, Art Unit 2611